

Simple Solutions for Hand-Intensive Work

The Problem

Construction workers usually spend a lot of time gripping tools or materials with one or both hands. This work can put stress on your hand, wrist, and/or elbow, causing discomfort and pain. Eventually you may develop a serious muscle or joint injury. Your ability to use your hands and wrists may be reduced, and you may even become permanently disabled.

You are at risk of injury if you often use a forceful grip on tools, bend your wrist when using them, or move your wrist rapidly or repetitively. Injuries also can result if you frequently hold vibrating tools, or if tool handles that are hard or sharp often press into your hand, wrist, or arm.

Gripping tools and other materials can be physically demanding, repetitive work. It may injure the muscles, tendons, and cartilage of your hand, wrist, and elbow. Damage to the nerves and blood vessels can also occur.

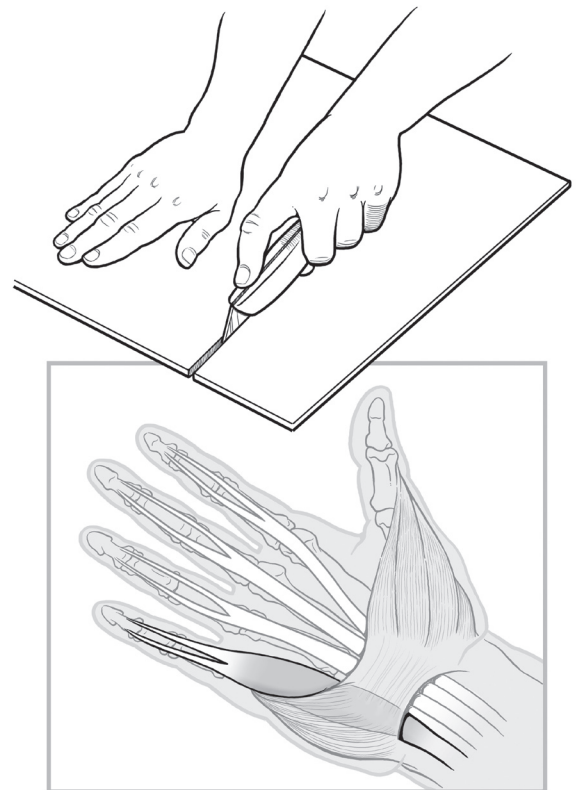
If you experience soreness or pain, and continue doing the work without allowing your muscles and tendons to rest and heal, the pain may get worse and you may eventually develop a serious disorder.

Injuries & Disorders

Below are some of the injuries you may develop when you do hand-intensive work.

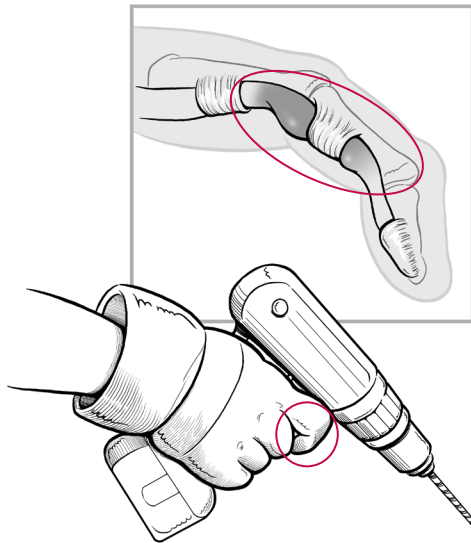
Tendinitis. Most of the muscles that move your hand and fingers are actually in your forearm. These muscles are connected to the hand and fingers by tendons, which are like cords passing through your wrist.

You can strain the tendons in your wrist if you frequently exert strong force with your hand, bend your wrist while working, or repeat the same wrist movements over and over. If this strain continues over time, you may develop tendinitis. Tendinitis makes it painful to use your hand, especially to grasp things.

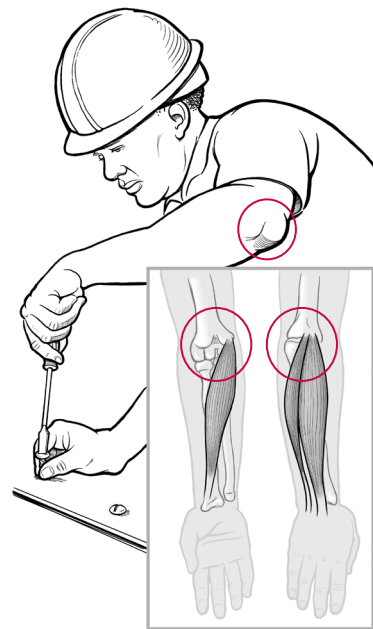


Carpal tunnel syndrome. The carpal tunnel is an area in your wrist that is surrounded by bone and tissue. A nerve and several tendons pass through this tunnel. If you have tendinitis and your tendons swell, there is less room in the tunnel for the nerve. When the nerve is squeezed this way, the condition is called carpal tunnel syndrome. It often leads to pain, tingling, or numbness in your hand, wrist, or arm. These symptoms are often felt at night.

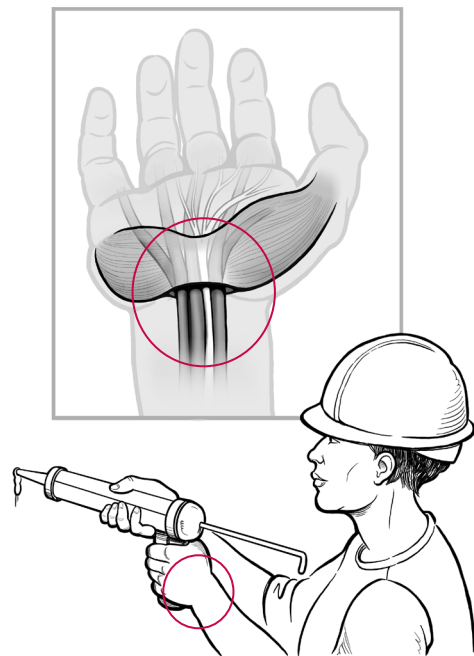
If left untreated, carpal tunnel syndrome can weaken the hand and make it very difficult to grasp things or even use that hand at all.



Epicondylitis. Forceful twisting motions may cause strain on your elbow tendons, causing discomfort or pain. This condition is called epicondylitis, also known as tennis elbow.



Hand-arm vibration syndrome (HAVS). Operating vibrating tools like needle guns, chipping hammers, and rotary hammer drills may lead to finger discoloration, tingling, and numbness. Gangrene is possible in the most severe cases.



Trigger finger. Repeated pressure on a finger (such as when using the trigger on a power tool) may strain the tendon running to that finger, as well as the tendon covering This may cause discomfort or pain.

Some Solutions

Hand-intensive work cannot be eliminated from construction, but it is possible to change how you do it so the work is easier on your body. Solutions are available that can reduce the level of stress on your hands, wrists, and arms. They may also reduce how often and how long your body is subjected to this stress. Many of the solutions can also eliminate other potential safety hazards and increase productivity.

The type of task and the site conditions will determine which solutions are best for you. A few possible solutions for specific hand-intensive tasks are explained in Tip Sheets #14–20.

General solutions for doing hand-intensive work with less risk of injury include:

Change materials or work processes. One of the most effective solutions may be to use materials, building components, or work methods that are less labor-intensive. For example, use lock nuts or button nuts on all-thread systems to reduce repeated hand-arm twisting and turning. An individual construction worker or subcontractor usually cannot make a decision like this. Certain changes may require the approval of the building owner, architect, engineer, or general contractor.

Change tools and/or equipment. If the work requires frequent intensive hand activity, you can often substitute a power tool for a manual tool. This will reduce the amount of hand force needed and the number of repeated movements, especially twisting motions. You will get the job done with less effort.

You can also use ergonomically improved tools. Select a tool that comes with a power grip, or add a power grip to existing tools. Compressible foam can be used to wrap a narrow tool handle and improve the grip. Some power tools have a large trigger that can be operated with multiple fingers so you don't constantly put all the stress on one finger. Also, look for power tools that meet stricter European hand-arm vibration requirements.

Choose the right tool for the job. For example, snips and other tools are available with features such as offset handles that can help keep your wrist straight on some types of jobs. Also, never use your hand to hammer or pound anything into place.

In a few cases, cost and site conditions may restrict the use of ergonomically improved tools.

Change work rules and provide training. Contractors can encourage the use of equipment like ergonomic tools. Site rules can limit the amount of time that workers do hand-intensive jobs without a break. A policy of providing ergonomics training may help workers more quickly identify potential problems and find effective solutions.



Offset handles can help keep the wrist straight